Statement of Work for Infrastructure, Design, Engineering, Architecture, and Integration (IDEAI)

1. Background

1.1. The mission of the United States Patent and Trademark Office (USPTO) is to administer the laws and regulations related to patents and trademarks in order to promote industrial and technical progress in the United States and strengthen the national economy. The USPTO carries out its mission by examining patent and trademark applications, issuing patents and registering trademarks, disseminating patent and trademark information to the public and by encouraging a domestic and international climate in which intellectual property can flourish.

1.2. Consistent with the President's Management Agenda, the USPTO is committed to improving transparency in its operations to enhance quality and public confidence. This means reporting information that is more meaningful about workloads and performance. It also means the information shall present a real basis for measuring improvements. The USPTO estimates that by the year 2012 over 692,000 patent applications (up from 445,613 in 2006) and more than 517,000 trademark applications (up from 354,775 in 2006) will be submitted annually. An estimated 1,200 additional patent examiners are to be hired each year for the next five years in an attempt to reduce patent pendency, which will substantially increase system and network workloads, and require establishment of remote sites throughout the country.

1.3. To support this significant increase in workloads, the USPTO is aggressively pursuing the design and development of new automated information systems and the refinement of existing information systems that will provide automated support to the patent and trademark application processing and examination functions, and dissemination of patent and trademark information to the public through the year 2012 and beyond. For the USPTO to be ready to meet the challenges brought on by the aforementioned increases in application filings, it must meet tight deadlines for its system design and development activities, which underscores the importance of prescribing sound foundational designs.

2. Purpose

2.1. The USPTO has a continuing requirement for Infrastructure, Design, Engineering, Architecture, and Integration, (IDEAI) contractor(s) to provide independent, objective, and expert technical advice and assistance for ongoing and future information technology initiatives.

2.2. The requirement is to provide System Planning, Secure System Design, Infrastructure Engineering, Network Engineering, System Engineering, Accessibility Engineering, Enterprise Architecture, Data Architecture, Application Architecture, Security Architecture, Security Engineering, and System Development Life Cycle Support, design of infrastructure system components, and may serve as an unbiased third party in the review of other Government contractors' plans, performance, and products.

2.3. The Contractor shall perform system planning, design, and engineering activities in support of the design and implementation of new automated information systems, enhancement of existing systems, and design and implementation of changes to the infrastructure. The

Contractor's work on system design and engineering activities shall provide support to the patent and trademark application processing and examination functions, USPTO management and administrative systems, and dissemination of patent and trademark information to the public through the year 2018.

2.4. Examples of technical efforts include, but are not limited to, the planning, design, and implementation of: distributed computer systems; office automation capabilities linked together through a USPTO-wide and wide area or remote (Telework) communications network; capabilities for full deployment of the automated patent text and image search, storage, and retrieval systems; capabilities providing automated support of administrative and management functions; automation of patent application receipt, assignment, and tracking functions, including the electronic receipt of all patent applications; optical character recognition capabilities; and patent and trademark application receipt and processing.

3. Scope of Work

3.1. The Contractor shall provide technical support for all phases of system planning and design through deployment to ensure that USPTO/OCIO IT solutions enable their internal and external users to meet their mission, goals, and objectives. These efforts include the full range of infrastructure engineering design, enterprise architecture standards, prototyping, integration, including, but not limited to, concept development, planning, requirements definition and analysis, systems design, integration, and deployment.

3.2. The services under development are complex in scope and far-reaching in application, both within and outside the USPTO. Successful development is largely dependent upon the collective efforts of a staff of diverse technical specialists able to respond quickly to the many variables and conditions that accompany a design and deployment effort of this proportion. There is a need for specialized areas of expertise especially in rapidly changing or evolving technologies. It is neither practical nor cost-effective, however, to fully staff all of these specialties in-house on a permanent, long-term basis because the need may be intermittent and short-term.

3.2.1. Infrastructure

3.2.1.1. The Contractor shall provide secure design and implementation of changes to the infrastructure, as well as, research, technical and systems engineering advice, support in the development of advanced technologies for information dissemination and exchange, and support of information technology security.

3.2.1.2. The Contractor shall advise and assist the USPTO in Infrastructure Engineering activities including but not limited to: LAN, WAN, wireless, VoIP networks; remote work at home networks; PKI, firewall and network security; virtualization; high availability infrastructures with on-line backup and recovery, clustered servers and storage area networks (SANs); investigating methods of UNIX, LINUX, and Windows server clustering; investigating methods of increasing UNIX, LINUX and Windows server performance through the use of load balancing; designing, prototyping, and implementing a multiple vendor based SAN with the existing and future server and storage devices. Design and

develop serverless backup and standards based data migration functions over the SAN; and assisting in the engineering design and implementation of Fiber Channel (FC) connectivity between the server farms and the USPTO enterprise data storage devices using Fiber Channel hubs and/or switches.

3.2.2. Design: The Contractor shall advise and assist the USPTO in the design of systems that support emerging enterprise architectures for areas such as IT infrastructure, security, networks, application integration, application architecture, data architecture and distributed computing.

3.2.3. Engineering

3.2.3.1. The Contractor shall provide telecommunications services to the USPTO and support ordering telecommunications products and services. Examples include voice, video, and data communication infrastructure, telecommunications architecture, collaboration architecture, network design, network engineering, Public Key Infrastructure (PKI), wireless communications, telephony, voice over IP systems (VOIP), voicemail systems, call accounting systems, video teleconferencing capabilities, secure remote access capabilities, monitoring, reporting on activities and performance, capacity planning of network resources, and advising the Infrastructure Engineering Office (IEO) Director on recommended actions.

3.2.3.2. The Contractor shall support 24/7 operation and maintenance (hardware and software) with on-site and on-call engineering support for LAN/WAN infrastructure; network security infrastructure; Enterprise Management System (EMS); Public Key Infrastructure (PKI); Remote access/Tele-work systems for employees and contractors; Financial and Human Resources networks Wireless, and Disaster Recovery Site.

3.2.3.3. Network Engineering: The Contractor shall support the USPTO with the network infrastructure for all USPTO data/voice/video communications efforts; provide final engineering designs for the network infrastructure, including security; engineer voice, video and data integration for all data communications including the USPTO campus (PTOnet), and wide area network requirements; provide support in resolving second and third tier network problems; upgrade, replace, or augment network hardware and software; leverage internet technologies to support USPTO business functions; and establish remote access capabilities.

3.2.3.4. Infrastructure Engineering: The Contractor shall support the USPTO in the provision of a full range of infrastructure engineering design, enterprise architecture standards, prototyping, integration, including, but not limited to, concept development, planning, requirements definition and analysis, systems design, integration, and deployment.

3.2.3.5. Wireless LAN (WLAN): The Contractor shall support WLAN as a productivity enhancer for USPTO staff, guests, and contractors. A smoothly implemented WLAN facilitates secure network connectivity from anywhere within USPTO's space. It also provides simple flexibility for cube-sharing, hoteling, and other situations where staff

move around and the number of network connections varies over time. WLAN supports document sharing and remaining connected during meetings. Instead of making a paper note and emailing a document at the end of the day, a meeting attendee can make it happen immediately. Similarly, immediate web or document storage access provides answers as needed, instead of going away, doing some quick research, and then continuing the discussion at another meeting.

3.2.3.6. The Public and Enterprise Wireless 802.11n LAN project provides campus wide 802.11n wireless coverage for public and private networks. It is composed of approximately 900 Lightweight Wireless Access points that are managed by Wireless LAN Controllers.

3.2.3.7. Security Engineering: The Contractor shall support USPTO's Enterprise and Departmental security infrastructure. It represents a technical application of the organization's written network security policies. USPTO Enterprise and departmental firewalls are used to provide security infrastructure to protect USPTO's internal networks and resources. The firewall components include capabilities that allow for the centralized monitoring and management of data traffic coming in or out of USPTO, permit network-based intrusion prevention, enable user authentication, and allow secured data exchange. The firewall infrastructure provides the flexibility to support and secure USPTO applications/systems as they develop and expand.

3.2.3.8. Network

3.2.3.8.1. The Contractor shall support USPTO's voice and data communication infrastructure requirements, including telecommunications architecture, collaboration architecture, network design, network cabling, network engineering, wireless communications, and telephony. The NTD manages the PBX system, Voice over IP systems (VoIP), voicemail systems, call accounting systems, and video teleconferencing capabilities, secure remote access capabilities, monitoring, reporting on activities and performance, capacity planning of network resources, and advising the IEO Director on recommended actions.

3.2.3.8.2. The USPTO network infrastructure all supports external connections with partners such as Department of Commerce, Department of Justice, etc. In addition to these external connections with our partners, the USPTO also have relationships and network connections with Department of the Treasury and the National Finance Center. The USPTO has an international agreement to provide network service to six (6) Trilateral Offices.

The USPTO requires experienced personnel in advance networking and security discipline to keep up with next generation technologies. Some of the new technologies are storage and network consolidation onto one common switching infrastructure and next generation firewalls.

3.2.4. Architecture: The Contractor shall provide the analysis, standards, decision support, and enterprise, network, system, application, and data architectures that deliver practical,

timely, and cost effective solutions for OCIO's customers and the agency in support of the following:

- **System/Enterprise Architecture**
- **Network Architecture**
- **Application Architecture**
- **Data Architecture**

3.2.5. Integration

3.2.5.1. Substitution and Technology Refreshment: If at any time during the life of this IDIQ, the USPTO schedules the products for discontinuation, improvement and/or replacement, the Contractor shall provide for these changes with the new or revised products on the IDIQ under the appropriate task orders. All projects shall require expansion and/or alteration of the infrastructure. Further, rapid delivery of automated systems requires upgrading USPTO's development infrastructure, software processes, and methodology.

3.2.5.2. Operational Enhancement

3.2.5.2.1. The Contractor shall support software process and tools improvement, and software development methodology improvement.

3.2.5.2.2. The Contractor shall enhancing technology capabilities of automated information systems and infrastructure to provide external access to the USPTO automated information systems in a secure controlled manner.

3.2.5.2.3. The Contractor shall continue an information technology security program for fully certifying and accrediting the security of every automated information system.

3.2.5.2.4. The Contractor shall developing standards based on industry best practices, compliant with the Federal Enterprise Architecture (FEA).

3.2.5.2.5. The Contractor shall enhance and simplify the technology infrastructure to support business operations in an electronic government environment.

3.2.5.2.6. The Contractor shall use the USPTO Software Development Life Cycle (SDLC) practices for improved performance.

4. Process and Procedures

4.1. System Development Life Cycle Enhancement

4.1.1. The USPTO's new Systems Development Life Cycle (SDLC) framework addresses a nine-phase systems development approach that specifies entrance and exit criteria, related

artifacts, and reviews for each phase. The phases are Initiation, Planning, Requirements Analysis, Design, Development, Testing, Implementation, Operations & Maintenance, and Retirement.

4.1.2. The Contractor shall develop, update, and maintain the following Agile artifacts: User Stories and Use Cases, Product Backlog, Sprint Backlog, Product Burn-down Charts, and Release Burn-down Charts.

4.1.3. The Contractor shall adhere to the supporting SDLC processes and any modifications that are implemented by the USPTO as the processes mature.

4.2. Change Management

4.2.1. All USPTO Support Contractors shall follow the USPTO Change Management, Release Management, and Problem Management processes. They are integral parts of effective IT Service Management and are part of the ITIL best practices framework.

4.2.2. ITIL disciplines used at USPTO include processes for Service Desk, Incident Management, Problem Management, Configuration Management, Change Management, Release Management, Capacity Management, Availability Management, Continuity Management, Financial Management, Service Level Management and Security Management. The Remedy software product was deployed a USPTO and shall be used to contractors for, Incident Management, Problem Management and Change Management.

5. Knowledge Transfer: As the USPTO prepares to complete a project with the assistance of a contractor, it preserves the knowledge that the contractor has amassed over the duration of the project. Knowledge transfer is one method for ensuring that accumulated wisdom does not leave the USPTO once the contractor moves on. Throughout the duration of the contract, the Contractor shall implement a continuing knowledge transfer program to the USPTO to ensure that the USPTO does not lose this valuable information and data. This may be in addition to the requirements for the documentation required under the SDLC.

6. Problem Notification: The Contractor shall notify the USPTO's Contracting Officer and COTR immediately of all problems that impact or potentially affect the contract, deliverable(s), or project schedule. Such notifications shall be made verbally during normal work hours or at the beginning of the next Government workday. For each problem encountered, verbal notification shall be followed by a written report to the Contracting Officer and copy to the COTR within 24 hours after the identification of the problem. This written report shall be submitted in accordance with the format and criteria contained in the Problem Notification Letter (Contract Deliverable No. PN01), provided in Attachment J.2.A.5.

7. Earned Value Management System (EVMS): The Contractor shall use an ANSI 748 compliant EVMS to report earned value.

8. Qualifications of Contractor Personnel

8.1. The Contractor shall propose the labor mix necessary to complete each issued task order.

8.2. The USPTO will not provide or pay for training, conferences, or seminars to be given to contractor personnel in order for them to perform their tasks, with the exception of USPTO-specific and specialized training not obtainable outside the USPTO (e.g., patent examination process class). The Contractor is expected to provide trained, knowledgeable personnel according to the requirement of the Task Order. If it is determined during the performance of the task order that training, conferences, or seminars not specified in the task order are required, only the Contracting Officer may approve the training.

8.3. Contractor personnel must possess excellent Communication Skills (e.g., excellent written and verbal communication skills acquired via customer service work).

8.3.1. Excellent Verbal Communication Skills include the ability to establish a professional rapport with customers; be a good listener and obtain required information; see things from another person's perspective; express knowledge in a clear, simple manner; explain technical matters to non-technical people; and be able to uphold the interests of the USPTO and convince others by making valid and relevant points in a professional manner.

8.3.2. Excellent Written Communication Skills includes ensuring text is accurate and is expressed in clear, straightforward manner.

8.4. Contractor personnel must possess administrative and project management skills:

8.4.1. The USPTO uses Microsoft Project Professional for all project management and Microsoft SharePoint for documentation version control and repository. Staff should be skilled with these tools to electronically update project plans and upload documents to our Enterprise Project Management System (EPMS).